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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,815	01/27/2004	Peter Pospichal	GP-304283	2447

65798 7590 09/26/2007

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EXAMINER	
CHUO, TONY SHENG HSIANG	
ART UNIT	**PAPER NUMBER**
1745	
MAIL DATE	**DELIVERY MODE**
09/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/765,815	POSPICHAL ET AL.	
	Examiner	Art Unit	
	Tony Chuo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *7-12,14,15 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,13 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1-20 are currently pending. Claims 7-12, 14, 15, and 20 are withdrawn as being directed to a non-elected species. The previous 112 rejection of claim 18 is withdrawn. The amended claims do not overcome the previously stated 102 and 103 rejections. Therefore, claims 1-6, 13, and 16-19 stand rejected under the following 102 and 103 rejections.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitani et al (JP 60-160574). The Mitani reference discloses a method of preventing a surge condition of a compressor in a fuel cell system comprising: storing a compressor map of the compressor; driving the compressor at a desirable speed; and using the compressor map to determine the location on the compressor map that the compressor is operating and prevent effectively the generation of surging (See Abstract and Drawings 1 and 2).

Examiner's note: It is inherent that the operating conditions such as air flow rate to the compressor and the speed of the compressor are measured parameters. Therefore, since the air flow rate and the speed are known parameters, the compressor map can be used to determine the discharge pressure and the temperature of the compressor.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 4-6, 13, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aramaki (US 2002/0039672) in view of Mitani et al (JP 60-160574).

The Aramaki reference discloses a fuel cell system comprising: a fuel cell "1" including a cathode input responsive to a charge airflow and a cathode exhaust; a compressor "2" generating airflow applied to the cathode input of the fuel cell; an air flow meter "4" responsive to the airflow sent to the compressor and generating a signal indicative of the speed of the airflow through the compressor; a motor "15" for driving the compressor; a controller "20" responsive to the signal from the air flow meter to provide a signal to the motor to control the speed of the compressor; and a back pressure valve "14" positioned in the cathode exhaust that controls the pressure in the fuel cell, wherein the controller controls the orientation of the back pressure valve (See

paragraphs [0018],[0019],[0025] and Figure 1). It also discloses a fuel cell system for use in an automotive field (See paragraph [0003]).

However, Aramaki does not expressly teach a by-pass valve in the cathode exhaust and a controller that stores a compressor map of the compressor, determines the discharge pressure and temperature of the compressor from the speed of the controller and the airflow signal from the mass flow meter, determines the location on the compressor map at which the system is operating, and prevents the compressor from entering a surge condition; or a compressor that is a turbo-machine compressor. The Mitani reference discloses a turbo-compressor system for fuel cell power generation and a method of operating the fuel cell system comprising: determining whether the operating condition of the compressor comes in the area A of the compressor map where surging takes place; and controlling the flow rate regulating valve "18" (by-pass valve) to return the operating condition of the compressor to the regular operation area B, thereby preventing the generation of surging.

Examiner's note: It is inherent that the Aramaki controller is capable of controlling the back pressure valve to prevent the surge condition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Aramaki fuel cell system to include a by-pass valve in the cathode exhaust and a controller that stores a compressor map of the compressor, determines the discharge pressure and temperature of the compressor from the speed of the controller and the airflow signal from the mass flow meter, determines the location on the compressor map at which the system is operating, and

prevents the compressor from entering a surge condition in order to control the flow rate for air supply to a compressor over a wide range without causing any problems such as surging.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aramaki (US 2002/0039672) in view of Mitani et al (JP 60-160574) as applied to claims 1 and 2 above, and further in view of Stenersen et al (US 2002/0150805).

However, Aramaki as modified by Mitani et al does not expressly teach a compressor that is selected from the group consisting of centrifugal, radial, axial, and mixed flow compressors. The Stenersen discloses compressors commonly used in conjunction with fuel cells that include centrifugal compressors and axial compressors (See paragraph [0139]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Aramaki/Mitani fuel cell system to include a compressor that is selected from the group consisting of centrifugal and axial compressors in order to utilize a compressor that is compatible for use in fuel cell systems for supplying air to the fuel cell.

Response to Arguments

7. Applicant's arguments filed 8/16/07 have been fully considered but they are not persuasive.

The applicant argues that Mitani et al does not store the compressor map that they show in their figure 1 to be used in the system because there is no need for the

map to be stored in that system. The examiner disagrees. It is inherent from the teachings of Mitani that a controller is used to provide a signal to the motor to control the speed of the compressor. The Mitani reference also teaches effectively preventing the generation of surging by using the operating condition of the compressor to determine the location on the compressor map that the compressor is operating (See Abstract). Therefore, the compressor map would necessarily be stored in the controller in order to determine whether the compressor is approaching an area where surging takes place. Further, in order to prevent the generation of surging, suitable action would necessarily be taken before the compressor enters the surge condition.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

JONATHAN CREPEAU
PRIMARY EXAMINER